

We claim:

1. A support element for a semiconductor package, the support element comprising:

5 (a) a first surface having a plurality of conductors;

(b) a second surface having a plurality of die attach areas, wherein at least one of the die attach areas comprises a defective die attach area;

(c) the die attach areas including wire bond slots extending from the first surface to the second surface of the support element so as to form 10 openings therethrough; and

(d) a cover member attached to the at least one defective die attach area so as to cover at least a portion of the wire bond slot, wherein the cover member does not comprise a functional die.

15 2. The support element of claim 1, wherein the cover member comprises self-adhesive tape.

3. The support member of claim 1, wherein the cover member comprises a defective die.

20 4. The support member of claim 1, wherein the cover member covers from about 80% to about 90% of the wire bond slot.

25 5. The support member of claim 1, wherein the cover member covers at least 70% of an opening formed by the wire bond slot.

6. A support element comprising:

30 (a) a plurality of integrally connected substrates, the substrates forming a first surface and a second surface;

(b) at least one substrate forming a defective die attach area on the second surface of the substrate;

(c) the at least one substrate having a wire bond slot forming an opening through the substrate extending from the first surface to the second surface; and

(d) a cover member attached to the at least one substrate at the

5 defective die attach area so as to cover at least a portion of the wire bond slot, wherein the cover member does not comprise a functional die.

7. The support element of claim 6, wherein the first surface further includes a plurality of conductors.

10 8. The support member of claim 6, wherein the cover member comprises tape.

15 9. The support member of claim 6, wherein the cover member covers a majority of an opening formed by the wire bond slot.

10. A substrate of a support element, the substrate comprising:

(a) an insulating material having a first surface;

(b) a defective pattern of conductors on the first surface;

20 (c) a wire bond slot forming an opening through the substrate extending from the first surface to a second surface; and

(d) a cover member attached to the substrate on the second surface so as to cover at least a portion of the wire bond slot, wherein the cover member does not comprise a functional die.

25 11. The substrate of claim 10, wherein the cover member comprises self-adhesive tape.

12. The substrate of claim 10, wherein the cover member comprises a defective die.



13. The substrate of claim 10, wherein the cover member covers from about 80% to about 90% of the wire bond slot.

14. The substrate of claim 10, wherein the cover member covers at least 70% of an opening formed by the wire bond slot.

15. A support element comprising:

(a) a strip of insulating material forming a plurality of integrally connected substrates;

10 (b) a first surface having electrical circuitry at each substrate, wherein at least substrate includes defective electrical circuitry;

(c) a second surface having a substantially planar die attach surface at each substrate; and

(d) 15 a cover member placed on the at least one substrate having defective electrical circuitry, wherein the cover member covers at least a portion of an opening extending through the substrate and does not comprise a functional die.

16. The support member of claim 15, wherein the cover member 20 covers from about 80% to about 90% of the opening.

17. The support element of claim 15, wherein the cover member comprises self-adhesive tape.

25 18. The support element of claim 15, wherein the cover member comprises a defective die.

19. A support element for a semiconductor package, the support element comprising:

30 (a) a first surface having a plurality of conductors;

(b) a second surface having a plurality of die attach areas, wherein at least one of the die attach areas comprises a defective die attach area;

(c) the die attach areas including wire bond slots extending from the first surface to the second surface of the support element so as to form 5 openings therethrough; and

(d) a cover member attached to the at least one defective die attach area so as to cover enough of the opening formed by the wire bond slot so as to substantially eliminate bleeding when the support element is encapsulated, wherein the cover member does not comprise a functional die.

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20. The support element of claim 19, wherein the cover element does not cover enough of the opening so as to cause a negative pressure zone at the wire bond slot when the support element is encapsulated with a liquid plastic.

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21. A support element comprising:

(a) a plurality of integrally connected substrates, the substrates forming a first surface and a second surface;

(b) at least one substrate forming a defective die attach area on the second surface of the substrate;

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(c) the at least one substrate having a wire bond slot forming an opening through the substrate extending from the first surface to the second surface; and

(d) a cover member attached to the at least one substrate at the defective die attach area so as to cover a majority of the opening formed by the 25 wire bond slot, wherein the cover member does not comprise a functional die.

22. A support element comprising:

(a) a plurality of integrally connected substrates, the substrates forming a first surface and a second surface;

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(b) at least one substrate forming a defective die attach area on the second surface of the substrate;

(c) the at least one substrate having a wire bond slot forming an opening through the substrate extending from the first surface to the second surface; and

(d) a cover member attached to the at least one substrate at the

5 defective die attach area so as to cover from about 70 percent to about 100 percent of the opening formed by the wire bond slot, wherein the cover member does not comprise a functional die.

23. A substrate of a support element, the substrate comprising:

10 (a) a first surface having a pattern of conductors;

(b) a second surface having a die attach area with defective electrical circuitry;

(c) a wire bond slot forming an opening through the substrate extending from the first surface to the second surface; and

15 (d) a cover member attached to the substrate on the second surface so as to cover a majority of the opening formed by the wire bond slot, wherein the cover member does not comprise a functional die.

24. A support element for a semiconductor package, the support

20 element comprising:

(a) a first surface having a plurality of conductors;

(b) a second surface having a plurality of die attach areas, wherein at least one of the die attach areas comprises a defective die attach area;

(c) the die attach areas including wire bond slots extending from the

25 first surface to the second surface of the support element so as to form openings therethrough; and

(d) a defective die attached to the at least one defective die attach

area so as to cover at least a portion of the wire bond slot.

25. The support element of claim 24, wherein the cover member comprises heat-sensitive tape covering a majority of an opening formed by a wire bond slot.

5 26. The support element of claim 24, wherein the cover member comprises a defective die covering from about 80% to about 90% of an opening formed by a wire bond slot.

10 27. A support element for a semiconductor package, the support element comprising:

(a) a first surface having a plurality of conductors;
(b) a second surface having a plurality of die attach areas, wherein at least one of the die attach areas comprises a defective die attach area;
(c) the die attach areas including wire bond slots extending from the first surface to the second surface of the support element so as to form openings therethrough; and
(d) tape attached to the at least one defective die attach area so as to cover at least a portion of the wire bond slot.

20 28. A substrate of a support element, the substrate comprising:

(a) a first surface having a pattern of conductors;
(b) a second surface having a die attach area with defective electrical circuitry;
(c) a wire bond slot forming an opening through the substrate extending from the first surface to the second surface; and
(d) a defective die attached to the substrate on the second surface so as to cover at least a portion of the wire bond slot.

25 29. A support element for a semiconductor package, the support element comprising:

(a) a first surface having a plurality of conductors;

(b) a second surface having a plurality of die attach sites, wherein a first die attach site is defective and a second die attach site is functional;

(c) a plurality of integrally connected substrates formed by the first and second surfaces; and

5 (d) the substrates including wire bond slots extending from the first surface to the second surface of the support element so as to form openings therethrough, wherein there is at least one opening formed at the first and the second die attach sites;

10 (e) a cover member attached to the first die attach site so as to cover from about 70% to about 100% of the opening.

30. A defective semiconductor package comprising:

(a) a substrate having a first surface with a pattern of conductors;

(b) the substrate having a second surface including a defective die

15 attach site;

(c) a wire bond slot forming an opening through the substrate extending from the first surface to the second surface; and

(d) a cover member attached to the substrate on the second surface so as to cover at least a portion of the opening, wherein the cover member does 20 not comprise a functional die.

31. The defective semiconductor package of claim 30, wherein the cover member comprises tape.

25 32. The defective semiconductor package of claim 30, wherein the cover member covers a majority of the opening.

33. A method of fabricating a support element for a semiconductor package, the method comprising:

30 (a) forming a plurality of conductors on a first surface of an insulating material;

(b) forming a plurality of die attach areas on a second surface of the insulating material, wherein at least one of the die attach areas comprises a defective die attach area;

5 (c) forming wire bond slots to extend from the first surface to the second surface of the insulating material so as to form openings therethrough; and

(d) attaching a defective die to the at least one defective die attach area so as to cover at least a portion of the wire bond slot.

10 34. A method of fabricating a semiconductor package comprising:

(a) forming a plurality of conductors on a first surface of an insulating material;

(b) forming a plurality of die attach sites on a second surface of the insulating material, wherein at least one of the die attach sites comprises a defective die attach site;

(c) forming wire bond slots to extend from the first surface to the second surface of the insulating material so as to form openings therethrough;

(d) attaching a cover member to the at least one defective die attach site so as to cover at least a portion of the wire bond slot;

20 (e) attaching a functional die to at least one die attach site; and

(f) encapsulating the insulating material, cover member, and die with a plastic material.

35. A method of fabricating a semiconductor package comprising:

25 (a) forming a support element having at least one defective die site and at least one functional die site;

(b) attaching a cover member over an opening formed by a wire bond slot at the defective die site, wherein the cover member does not comprise a functional die; and

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(c) encapsulating the support element, cover member and functional die with a plastic material.